

Claims

1. Fire detector, comprising an insertable detector assembly which includes a sensor arrangement (2) and an electronic evaluation system, and comprising a housing (3) which surrounds the sensor arrangement (2) and has openings to provide access by air and, when applicable, smoke to the sensor arrangement (2), characterised in that the detector is of modular construction and is configured to accommodate detector modules having sensors (11, 12, 12'; 24) for different fire parameters, all detection modules being compatible with a single housing (3).
2. Fire detector according to claim 1, characterised in that the sensor arrangement (2) and the above-mentioned access openings are arranged substantially in one plane.
3. Fire detector according to claim 2, characterised in that the detection modules have an identical carrier plate (6) for all detector types, which carrier plate (6) is insertable in the detector and is configured to accommodate the sensors (11, 12, 12'; 24) for the different fire parameters.
4. Fire detector according to claim 3, characterised in that the carrier plate (6) includes, on its underside facing towards the detector cap, housings (13, 14, 15) for accommodating components of an electro-optical sensor system (2) and is configured on its upper side for mounting a printed circuit board (8) carrying the electronic evaluation system.
5. Fire detector according to claim 2, characterised in that the housing (3) includes a detector hood (17) which consists of an annular upper part and a lower part spaced therefrom and forming the cap of the detector.
6. Fire detector according to claim 5, characterised in that the gap (19) between the two parts of the detector hood (17) forms the above-mentioned access openings and the above-mentioned lower part is connected to the upper part by arcuate or rib-like bridges (18).
7. Fire detector according to any one of claims 4 to 6, characterised in that an optical detection module for measuring scattered light caused by smoke is provided, which detection module includes at least one light source (12, 12'), a light detector (11), a measuring chamber and a labyrinth system (7) having screens (16) arranged at its periphery, the at least one light source (12, 12') and the light

detector (11) being fixed in the housings (14, 15; 13) on the underside of the carrier plate (6) and the labyrinth system (7) being formed in the manner of a cover and being fixable to the carrier plate (6).

- 5 8. Fire detector according to any one of claims 4 to 6, characterised in that there is provided a thermal detection module having two temperature sensors (24) which are fixed to the printed circuit board (8) radially opposite one another and project downwardly from the latter through the carrier plate (6).
- 10 9. Fire detector according to claims 6 and 8, characterised in that the above-mentioned bridges (18) are configured in the form of wings or straps having a vertically disposed opening (25) and are provided in an even number, and in that the temperature sensors (24) project from above towards one of the bridges (18) in each case in such a way that their free ends are located directly in or behind the opening (25).
- 15 10. Fire detector according to claims 4 and 9, characterised in that the thermal detection module has a cover plate (26) fixable to the carrier plate (6) for covering the housings (13, 14, 15) which are provided for the electro-optical sensor system (2), and in that openings through which the temperature sensors (24) can pass are provided in the covering plate (26) and a dividing wall (31) for effecting a directed air-flow is provided between the temperature sensors (24) and is
20 disposed in a radial direction.
- 25 11. Fire detector according to any one of claims 4 to 6, characterised in that an optical-thermal detection module for measuring scattered light caused by smoke and for measuring temperature is provided, which detection module includes an electro-optical sensor system (2) and two temperature sensors (24), the latter being arranged laterally beside the optical sensor system (2).
12. Fire detector according to claims 4, 6 and 11, characterised in that the temperature sensors (24) are fixed to the printed circuit board (8) radially opposite one another and their free ends are located in the vicinity of the above-mentioned bridges (18).
- 30 13. Fire detector according to claim 9 or 12, characterised in that the bridges (18) are so configured that, firstly, they protect the temperature sensors (24) from mechanical influences and, secondly, they ensure air-flow to the temperature sensors (24) which is as undisturbed as possible.

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14. Fire detector according to claims 4 and 5, characterised in that a light guide (22) is fixed to the base of the labyrinth system (7), which light guide (22) extends upwardly to the printed circuit board (8) and forms part of an alarm display visible in the region of the apex of the detector.
- 5 15. Fire detector according to any one of claims 1 to 14, characterised by a base (1) associated with the fire detector and having a multi-pole connector (4), and by a multiple plug (5) arranged in the fire detector and insertable tangentially in the multi-pole connector (4) by rotating the detector relatively to the base (1).
- 10 16. Fire detector according claims 4 and 15, characterised in that the multiple plug (5) is integrated in the carrier plate (16) using insert technology.
17. Fire detector according to any one of claims 1 to 16, characterised in that an alarm module having an acoustic alarm emitter is provided which is arranged in a separate housing offset from the fire detector and preferably arranged laterally beside the latter or moulded therewith.